treatment processes to effect treatments of the surface areas of the beads, the use of such processes is neither critical nor essential to the practice of the invention. On Page 1, Lines 13-21 of the specification, it is stated that:

> "Certain preferred composite materials for the practice of the herein described invention are those polymeric beads associated with each other through use of adhesive materials .... The most preferred composite materials for the practice are those polymeric bead/adhesive composite materials wherein the polymeric bead component is comprised of beads that have been treated in an electrically excited field" (emphasis added).

Thus, the specification clearly contemplates that although the beads may be subjected to the electrical excitation zone treatment processes described therein, it is clearly stated that such treatment processes are only preferred, not required. Thus, this rejection should be withdrawn.

The Examiner rejected Claims 39-71 under 35 U.S.C. 112, second paragraph, stating independent Claims 39 and 69 were "grammatically ambiguous" and did not "clearly and accurately convey the spatial relationship of the claimed elements." The rejection is not understood. Independent Claim 39 plainly defines the invention as a composite material that includes a plurality of beads having average diameters between about 1 mm and about 10 mm and an adhesive coating provided on at least 50 percent of the surfaces of at least 50 percent of the plurality of beads. A cured form of the adhesive has a hardness ranging from about Shore A 25 to about Shore A 95. The adhesive represents between about 20 percent and about 80 percent of the weight of the composite material. The plurality of beads and the adhesive create a composite material having a system of void spaces. New independent Claim 68 defines the invention in a similar manner, except that the plurality of beads has electrical excitation zone-treated surfaces. Such claims are believed to clearly and unambiguously define the scope of the invention. Clarification of the rejection is respectfully requested.

The Examiner rejected Claims 69-71 under 35 U.S.C. 103(a) as being obvious in view of the combined teachings of the parent '470 application and the Lectro Engineering reference. The Examiner stated that independent Claim 69 was not

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supported by the specification of the parent '470 application, but did not provide any explanation as to what portion of Claim 69 was not properly supported. Clarification is requested. Regarding dependent Claim 70, the Examiner stated that the specification of the parent '470 application did not "specifically disclose that the beads are electrical excitation treated more than one to accomplish more than one kind of treatment." This rejection is respectfully traversed. On Page 17, Lines 16-22 of the parent '470 application, it is stated that:

> "In some of the most preferred embodiments of this invention, these beads, no matter what their shape, will be made of materials that are subjected to one or more treatments (corona treatments in inert atmospheres, plasma jet treatments, flame treatments, etching, ozone treatments, etc.) to enhance the bonding qualities between the bead's outer surface and the adhesive layer placed on that outer surface" (emphasis added).

Thus, the parent '470 application clearly contemplates language of dependent Claim 70. Thus, these rejections should be withdrawn.

The Examiner rejected independent Claim 69 under 35 U.S.C. 103(a) as being obvious in view of the combined teachings of the Kasahara et al. reference, the Lectro Engineering reference, and the Frankel reference. This rejection is respectfully traversed.

Independent Claim 69 defines the invention as a composite material including a plurality of beads having electrical excitation zone-treated surfaces and having average diameters between about 1 mm and about 10 mm. An adhesive coating is provided on at least 50 percent of the electrical excitation zone-treated surfaces of at least 50 percent of the plurality of beads A cured form of the adhesive has a hardness ranging from about Shore A 25 to about Shore A 95. The adhesive represents between about 20 percent and about 80 percent of the weight of the composite material. The plurality of beads and the adhesive create a composite material having a system of void spaces.

The Kasahara et al. reference discloses a porous foam plate that is used to stabilize or support the stalk of a plant grown by a hydroponic method. The Kasahara et al. foam plate is formed from a plurality of polystyrene or polyethylene beads that have a particle diameter of about 2 to about 20 mm. The surfaces of such beads are

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coated with a liquid adhesive such that the beads are bonded to one another. Thus, the Kasahara et al. reference fails to disclose the claimed limitations of (1) the plurality of beads having electrical excitation zone-treated surfaces, and (2) the cured form of the adhesive having a hardness ranging from about Shore A 20 to about Shore A 95.

The Examiner cited the Frankel reference as teaching "an acrylic emulsion [that is] useful as an adhesive .... having a Shore A hardness of 25" and that motivation for combining the Frankel reference was to "provide a porous foam plate with improved toughness and tensile strength." However, not only are the need for "improved toughness and tensile strength" completely absent from the disclosure of the Kasahara et al. reference, such characteristics would appear to be contrary to the teachings thereof. Specifically, the Kasahara et al. reference calls for a porous foam plate consisting of an aggregate of foamed beads with water permeable spaces among adjoining beads and adapted to float on water. "Improved toughness and tensile strength" in the plate could impair or defeat the hydroponic method. Thus, the combination of the Frankel reference with the other art of record is inappropriate.

The Examiner relies upon the DVD reference to supply the teaching of the plurality of beads having electrical excitation zone-treated surfaces. However, the DVD reference is non-analogous art to the claimed invention and therefore, should not be considered at all when evaluating the patentability of the claimed invention. This argument, supported by the previously filed Runkles Declaration is again urged, but will not be pursued in detail here.

Even if the DVD reference is analogous art to the claimed invention, the teachings thereof are incompatible with the teachings of the Kasahara et al. reference and, therefore, cannot be properly combined therewith. As mentioned above, the Kasahara et al. reference discloses a porous foam plate that is used to stabilize or support the stalk of a plant grown by a hydroponic method. The DVD reference relates to the in-line surface treatment of bulk plastic articles, specifically the use of a plasma surface treatment to increase the surface tension, dyne level, and wetability of an article to enhance bonding of coatings, inks, or other adhesives. The Examiner stated that the motivation for combining the teachings of the Kasahara et al. reference

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and the DVD reference was "to provide an increase in the surface energy of the beads, thereby enhancing adhesive strength between the adhesive and the beads." However, there is no disclosure whatsoever contained in the Kasahara et al. reference that suggests that the adhesive strength between the beads that form the porous foam plate needs to be increased, as suggested by the Examiner. Rather, it is just as likely that an increase in the adhesive strength between the beads that form the Kasahara et al. porous foam plate would result in a structure that is unsuitable for use in the disclosed hydroponic method. Certainly, the DVD reference provides no motivation whatsoever for applying the disclosed plasma treatment to a porous foam plate that is used to stabilize or support the stalk of a plant grown by a hydroponic method. Absent any reasonable suggestion or motivation in the references, the combination of the teachings proposed by the Examiner must fail.

Furthermore, even if the teachings of the Kasahara et al. reference and the DVD reference are combinable, the resultant structure is quite different from the claimed invention. As mentioned above, the Kasahara et al. reference discloses a porous foam plate. The DVD reference relates to a process for the surface treatment of an article. A proper combination of the two references would result in the porous foam plate of the Kasahara et al. reference being subjected to the surface treatment disclosed in the DVD reference. Thus, the combined teachings of the two references does not result in the claimed structure, wherein the plurality of beads having electrical excitation zone-treated surfaces. Rather, the combined teachings of the two references results in a porous foam plate having only an outer surface that is surface treated, not the plurality of beads. Thus, even if the teachings of the Kasahara et al. reference and the DVD reference are combined, the claimed invention is not achieved. Accordingly, the rejections are untenable and must be withdrawn.

The Examiner previously stated that the Runkles Declaration was "ineffective to overcome the finding of obviousness." However, the reasons for this were not clearly expressed. It is respectfully requested that the Examiner clearly and

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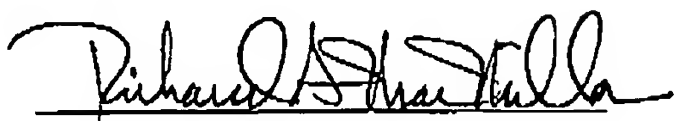
completely express the reasons why the Runkles Declaration was "ineffective to overcome the finding of obviousness."

Respectfully submitted,



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